FACT SHEET:
CPUC's 33% RPS by 2020 Preliminary Cost Analysis

Summary:

- According to one scenario (defined below), a 33% RPS may require $60 billion in cumulative investment in generation and transmission.
- The $60 billion in investment costs is an estimate of the gross cost of the RPS program. The avoided costs of building and operating conventional fossil-fueled resources have not been netted out of this figure.
- According to this scenario, in the year 2020, a 33% RPS will cost $8.9 billion, but will save $6.3 billion in avoided costs, resulting in a net cost to ratepayers of $2.6 billion (all in $2008). This is not cumulative costs, but rather a snapshot for the year 2020.
- Compared to the "all natural gas scenario" from the CPUC/CEC greenhouse gas (GHG) proceeding, a 33% RPS combined with significantly expanded energy efficiency will only increase costs 4% annually. This number can be reduced even further with successful energy efficiency.
- The CPUC continues to analyze a 33% RPS and will have a more robust estimate of total costs and net costs during the first quarter of 2009, once CPUC staff concludes the first phase of the 33% RPS Implementation Analysis.

Key assumptions and key drivers in calculating cost of a 33% RPS:

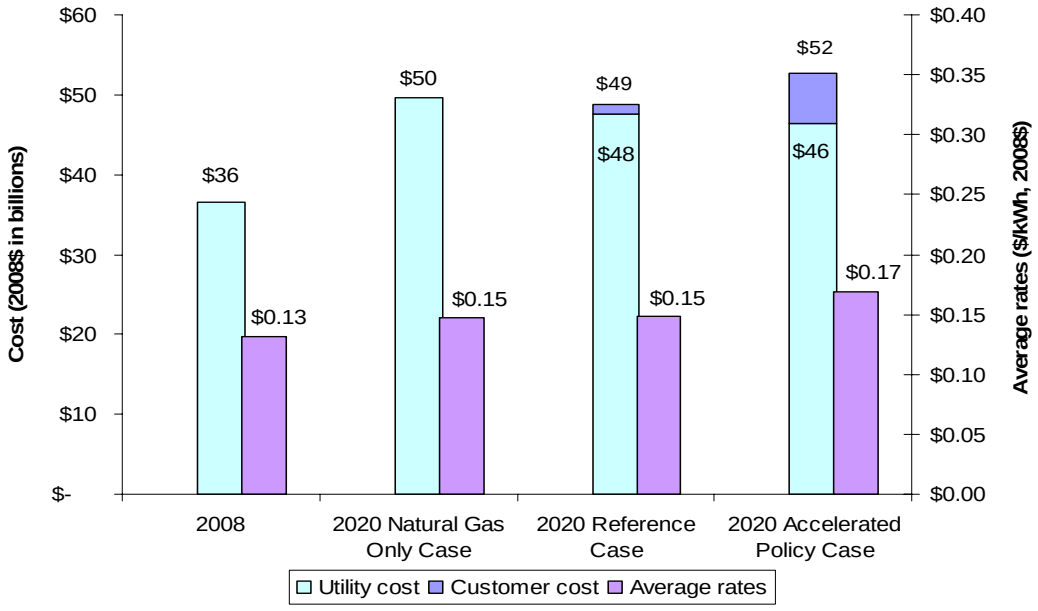
- The analysis assumes that only existing technology is used to meet the 33% RPS, and that costs remain at current levels. The analysis also assumes new renewable generation is in California or directly linked to the California grid.
- The key drivers of this analysis include natural gas prices, the level of energy efficiency achieved (energy efficiency decreases the amount of renewable energy needed), and development of new renewable technology (changes in cost and performance).
- All assumptions match the GHG Modeling assumptions from the recently concluded joint CPUC/CEC GHG proceeding conducted to support the California Air Resources Board (CARB) in developing the AB 32 Scoping Plan (R.06-04-009). See http://www.ethree.com/CPUC_GHG_Model.html.

Definition of $60 billion estimate:

- The $60 billion estimate is the cumulative investment in generation and transmission needed to reach a 33% RPS starting today. It is the undiscounted sum of capital costs to be expended over time expressed in constant dollars ($2008).
- The $60 billion estimate does not take into account the benefits of a 33% RPS, such as avoided costs of natural gas fuel purchases, reduced investment in fossil infrastructure, or emissions reductions.

- The final decision[1] of the joint CPUC/CEC GHG proceeding estimated that the statewide revenue requirement in the year 2020 ranged from $49 billion to $52 billion in $2008 (depending on the scenario). This is significant since the cumulative cost of a 33% RPS is only a fraction of the revenue requirement in the electric sector. CHART 1 contrasts total statewide revenue requirements[2] and the average cost per kWh in three scenarios.
    - **Natural Gas Only Case**. This is essentially the same as CARB's business as usual (BAU) case and envisions no further investments in either energy efficiency or RPS. It results in annual electric sector emissions of approximately 130 million metric tons of carbon dioxide equivalent ($MMTCO_2e$).
    - **Reference Case.** This case projects continuation of current levels of energy efficiency programs and the 20% RPS through 2020. It maintains annual electric sector emissions at the current level, approximately 105 $MMTCO_2e$.
    - **Accelerated Policy Case.** This case implements the policies recommended in the joint CPUC/CEC GHG decision and adopted in CARB's Proposed Scoping Plan—33% RPS and significantly expanded energy efficiency programs. It results in annual electric sector emissions of approximately 80 $MMTCO_2e$. The incremental cost compared to the natural gas only case is 4% annually. The cost of this portfolio can be reduced even further with successful energy efficiency.

CHART 1: Cost comparison across three scenarios from GHG Decision



[1] http://docs.cpuc.ca.gov/word_pdf/FINAL_DECISION/92591.pdf, see page 116.

[2] The customer cost component of these figures represents the share that customers pay for investments in energy saving equipment, solar installations, etc… Only the portion of costs labeled "utility costs" would be reflected in rates.

TABLE 1 presents the cumulative investment costs of a 20% and 33% RPS. TABLE 2 presents the net cost to ratepayers in the year 2020. TABLE 2 does not present cumulative costs between now and 2020, but rather a snapshot of the costs ratepayers would incur under a 20% or 33% RPS in the year 2020. Notably, only those benefits that can be readily quantified and monetized are included in the avoided costs.

- These tables summarize the costs and benefits in 2020, the year that we assume 33% is achieved. In the base case scenario, the consumer costs in 2020 for the 33% RPS are estimated to be $8.9 billion per year in 2008 dollars ($2008). However, there are offsetting savings of $6.3 billion in saved capital and fuel costs of conventional generation. The net costs of the 33% RPS are therefore $2.6 billion in the year 2020.

TABLE 1
Cumulative Investment Costs - Billions of Dollars ($2008)

	Existing to 20% RPS	Existing to 33% RPS	Difference between 20% and 33% RPS
Renewable Generation Cost $B	$21.1	$54.5	$33.4
Transmission Cost $B	$3.6	$6.4	$2.8
Total Investment Costs $B	**$24.7**	**$60.9**	**$36.2**

TABLE 2
Annual Cost to Ratepayers in 2020 - Billions of Dollars per year ($2008)

	Existing to 20% RPS	Existing to 33% RPS	Difference between 20% and 33% RPS
Annual Cost in 2020 $B/year	$3.4	$8.9	$5.5
Annual Benefits in 2020 $B/year	$2.6	$6.3	$3.7
Net Cost in 2020 $B/year	**$0.8**	**$2.6**	**$1.8**

Net cost of a 33 percent RPS for low, mid, and high gas prices:

- The analysis in TABLE 2 assumes a gas price of $10.56/MMBtu in nominal 2020 dollars, which is based on the NYMEX forward market price on 3/20/2008 when the analysis was completed.
- The 2020 RPS investment cost of a 33% RPS does not change based on the price of natural gas, as shown in the CHART 2 below. However, the RPS Benefit varies as this assumption changes, since renewable energy displaces electricity market purchases, which are highly correlated with the price of natural gas.
- The following chart shows the range of RPS costs and benefits for different natural gas price assumptions. The vertical axis shows 2020 costs, benefits, and net costs of a 33% RPS. The horizontal axis varies the natural gas price. In the base case with a natural gas price of $10.56/MMBtu, the net cost of the RPS is $2.6 billion per year in 2020. At natural gas prices of around $21/MMBtu, the 33% RPS breaks even. If natural gas prices are low, the net cost of the RPS is increased. For example, at $7.00/MMBtu the net cost grows to $3.5 billion per year.

CHART 2 – Cost of 33% RPS in 2020 based on Natural Gas Price